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ABSTRACT

This paper explores the Arizona educational system's educational demographics. It contains a foreword, executive summary, introduction, three sections, questions, sources, public opinion, and a list of the Arizona Minority Education Policy Analysis Center (AMEPAC) board members. The executive summary presents statistical highlights on the transient nature of Arizona's population, and the relatively low level of academic achievement of Arizona residents from elementary through post-secondary levels. The introduction notes two major segments in this report. The first presents a general view of Arizona as a demographic entity, while the second section presents a specific view of the state's educational demographics, with one focus on the issue of who "drops through the cracks," from birth through the Ph.D. One of the paper's goals is to present the whole Arizona education "pipeline" from pre-school to graduate school for the reader to understand what economic and social consequences occur when people are not allowed to continue through the pipeline even though they have the talent to proceed. Section 1 of the report looks at Arizona as a demographic reality. Section 2 explores the Arizona educational "pipeline," and Section 3 presents conclusions about how to improve this pipeline. Contains 15 references. (VWC)

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ED 435 421

Arizona Education – Birth to Grad School

AN EXPLORATION INTO ARIZONA EDUCATIONAL DEMOGRAPHICS

V. Allen

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Harold L. Hodgkinson

Center for Demographic Policy

Washington, D.C.

ARIZONA MINORITY EDUCATION POLICY ANALYSIS CENTER (AMEPAC)

A POLICY CENTER OF THE

ARIZONA COMMISSION FOR POSTSECONDARY EDUCATION

December 1996

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ARIZONA MINORITY EDUCATION POLICY ANALYSIS CENTER (AMEPAC)

MISSION

AMEPAC is a policy center operated by the Arizona Commission for Postsecondary Education.

The Center's mission is to stimulate, through studies, statewide discussion, and debate, constructive improvement of Arizona minority students' early awareness, access and achievement within all sectors of education.

The Center, under the auspices of the Commission, will accomplish its mission through:

- policy research
- analysis of policy alternatives
- promotion of public discourse
- advocacy, through studies, of partnerships involving local board and institutional partnerships to improve early awareness, access and achievement
- advocacy, through studies, of policies that stimulate the responsiveness of the public school and postsecondary community to current and future public needs
- public recognition, through studies, of individuals and institutions demonstrating measurable success in implementing the Arizona Compact for Minority Student Achievement

To accomplish its mission, the Center focuses on four fundamental questions. The Center's primary activities relate to the sponsorship of reports related to these questions:

1. What does Arizona's future require of higher education in its mission to educate increasing numbers of minority students?
2. What is known and what can be learned about the effectiveness and productivity of higher education's efforts to equal educational opportunities and assistance to increasing numbers of minority students?
3. How well do current and proposed policies match individual and public needs to educate increasing numbers of minority students?
4. How successful is the state in achieving the goal, set in 1990 by its three state education governing boards, of proportional enrollments and comparable achievement for its minority students?

The Center and the Commission seek to promote wide public discussion of the future of Arizona minority student education among concerned parties including civic, community and education leaders, students, parents and leaders from government and business. The Center and the Commission seek constructive engagement of all these parties with these issues that will help shape Arizona's future through a communications strategy that includes publications, convening meetings and media strategies.

The guiding operational principles of the Center are careful, accurate nonpartisan and independent analysis; products (publications, reports) that are accessible to a lay audience; openness to discussion and debate-listening to critics as well as supporters; and a broad public interest perspective on minority student achievement issues.

The Commission is the Arizona statutory body charged with the conduct of numerous statewide, education-related activities including the study of the postsecondary education needs of unserved and under served individuals within the State.

The data, ideas, conclusions and recommendations in this paper represents the work of the author and not those of the AMEPAC Board of Directors or the Arizona Commission for Postsecondary Education.

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ARIZONA COMMISSION FOR POSTSECONDARY EDUCATION

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FOREWORD

I have been asked by the Arizona Minority Education Policy Analysis Center to write a foreword to Dr. Harold Hodgkinson's report on Arizona education. I find much in this report to reinforce my view that access by all students to Arizona's public universities is enhanced by early success in the education system. Success in the early grades is vital to a student's school persistence, and it is essential that all children enter Arizona's schools ready and eager to learn. I believe that the confidence, the skills, and the attitudes each student brings from the home and the community are absolutely critical to success in school. For this reason, I am a strong proponent of early awareness programs which reach out with a message which emphasizes academic achievement.

To ensure that all students are ready for school, and that their academic achievements translate into success in the workplace, Arizona's schools and citizens need to reaffirm their commitment to support families and education at all levels. In particular, the schools must speak on behalf of students with a strong, united voice. Arizona's educational community can take the first of many steps toward achieving a united voice when the universities join with the community colleges, the public schools, and private educators in a statewide focus on early awareness.

The dialogue which will be generated by Dr. Hodgkinson's report is a beginning, but beyond that beginning, the State of Arizona must dedicate itself to decisive actions which will enhance access to education and ensure academic success for all its citizens.

Sincerely,

John F. Munger
President
Arizona Board of Regents

Dr. Hodgkinson's report provides a solid foundation for a broad discussion among educators and policy makers at all levels as they consider the future direction for Arizona's education system. The report makes it clear that any effective educational reform in Arizona must consider the underlying social, cultural, and demographic forces that are shaping the State and must be a collaborative effort involving all levels of education.

This report demonstrates convincingly that far too many students are leaving the educational system much too early for them to have a reasonable chance of meeting their individual potential and of becoming productive contributors to the social and economic fabric of the State. In many ways, education is the key to success and productivity.

Arizona's community colleges have been addressing many of the higher educational needs of Arizona's citizens for many years. Too often, however, the community colleges, the public schools, and the universities have each addressed their responsibilities with little concern for, or involvement in the efforts of the other education sectors. This is no longer acceptable. Only a unified, collaborative approach has any hope of making the necessary changes in the basic underlying factors affecting student success and retention.

Arizona public schools, community colleges, and universities will be joining together to begin a dialogue focusing on the challenges outlined above. This will be a first step on what must be a long journey. All sectors of the educational community must put their best efforts into meeting this challenge. Nothing less will do.

Robert L. Gugino
Chairman
State Board of Directors for
Community Colleges of Arizona

EXECUTIVE SUMMARY

Economic and social consequences occur when people are not allowed to continue through the education pipelines even though they have the talent to proceed. The 15% of youth who drop out of high school produce over 70% of America's prisoners, at a maintenance cost of $26,000 per prisoner per year, compared to the $5,000 per student per year spent by public schools. Each prisoner sucks up enough money to provide scholarships for four students. Thus, a prevention agenda has enormous payoff.

Arizona's demographics affect the ability of its students to succeed. The chief problem is transience - which leads to crime, instability, and lack of consensus. Only 27% of its citizens were born in Arizona, while 80% of Pennsylvania residents were born in Pennsylvania. Rapid growth compounds the problems. Arizona is predicted to be the 5th in population growth, 1995-2005. Pennsylvania is stable and cohesive, with a low crime rate, and resistance to new ideas. On the other hand, Arizona is second in transience to Nevada, and second in overall crime rate. And none of the ideas brought from Pennsylvania, Illinois, or anywhere else will fit in Arizona.

The highest growth percentage comes with minorities, especially the Hispanic population. From 1980-90, Hispanic suburban populations grew by 67.7%. One of Arizona's success stories is the size of the Hispanic middle class, as measured by suburban residency.

Even with the rapid growth of the Hispanic population, the increase in LEP (limited English proficiency) in 3-4 year olds was only 3.5%, compared to a national increase of 30%. However, the percentage of 3-4 year olds in poverty grew from 18.5% to 24.3%.

Because Arizona still is a low-density state even in the face of growth, its poverty is more expensive and difficult to address. And Arizona is slightly higher than the national average in its number of people at the poverty level, especially minority youth. Poverty among minority youth and rural poverty are vexing issues even during good economic times.

On the positive side, Arizona is attractive to retirees, and has had an excellent decade in terms of economic development. With respect to social development, however, no progress has been made. We are way over the United States average of children in poverty, highest in the nation in teen pregnancy, and second highest in high school drop-outs.

Large numbers of Arizona's future students are in trouble before kindergarten. In 1990, 24.3% of our preschool children lived below the poverty line. Now, one third of all babies born in Arizona are born into poverty, most to single mothers, many of whom are teenagers. Arizona ranks 45th among the states in quality of life of its children.

Of every 100 pre-school children in Arizona, 11 will not attend public school because of handicaps or private choice, 20 will have moved out of Arizona, and 30 will have moved to a different location. Many teachers say that in September they start with 26 children, and by June, 24 of the 26 will be different. Because of risk factors and transience, 40% of Arizona's youngsters are predicted to have difficulty in school before they even begin.

In elementary school, unequal funding hampers school districts. Lawsuits have been brought by tax-poor school districts which cannot generate tax revenues comparable to those of wealthy school districts. Arizona

had 455,350 elementary students in 1989-90 and 543,024 in 1994-5. This increase of almost 100,000 students in only five years is obviously headed toward secondary and postsecondary levels. In 1992, 49% of Arizona 4th graders scored below a basic reading level. In a 1994 reading proficiency test, Arizona ranked 40th among the states.

In secondary school, most Arizona students score well on national SAT tests, because only 27% of our students take them! 12.6% of Arizona students drop out of high school, the second highest drop-out rate in the nation. The most important factor in the Arizona education pipelines is our absenteeism rate - the highest in the nation - and our second-highest drop-out rate. An absentee student should be thought of as "practicing to be a drop-out."

Arizona ranks 46th in the nation in the chances that a 19-year- old will be going to some form of postsecondary education, and 42nd in high school graduation rates. The Arizona education system is more open to allow some postsecondary education for high school graduates than most states, but many youth do not graduate. Indeed, Arizona's higher education system is far more sensitive to the needs of minorities and nontraditional students than the pipeline that feeds it. The very high demand in the Phoenix area for nontraditional adult education delivery systems - the University of Phoenix is one of many - can be explained by the fact that Arizona is third in the percentage of adults who have some college credits but no degree. The pipeline is broadened again by allowing some students to enroll in community college courses while completing their high school diplomas.

The Board of Regents has developed system with goals for minority students, particularly in increasing the percentage of Arizona high school graduates who will be directly admissible to the universities, to increase the recruitment of such minority students and to bring minority graduation rates in line with non-minorities. 23% of Arizona's college students are minorities, but the four-year institutions are below the diversity levels for the United States institutions of their type, even though the population is more diverse.

The legislature is in a cost cutting mode at the moment when youth related services must be expanded to accommodate a large expansion of youth, particularly minority youth. Deferred maintenance on young people is expensive and perilous. The best and most cost-conscious ways to broaden the education pipeline and lower the prison population are:

1. Reduce absentee rates in elementary schools.
2. Find out why young people decide to leave high school by developing a better tracking system for K-16.
3. Increase duel enrollment programs in high school and community colleges.
4. Encourage Arizona public higher education to increase its market share of adults who have college credits but no degree.
5. Increase the number of CLEP, GED, and AP exams in Arizona.
6. Increase the number of "three-way" collaborations.
7. Universities should be rewarded for decreasing their dependency on state funds, as well as for increasing student minority problems.
8. Being born into poverty is a more pervasive factor in being "at risk" than being of a particular ethnic background.

Increasing access for minorities at all levels of the education pipeline is important, but many minority youth are living in suburbs with college graduate parents and do not need special concern. Special concern should be placed where it is needed most, which would be the 27,800 pre-school children in Arizona being raised in poverty - a number that has doubled in just ten years.

INTRODUCTION

There are two major segments to this report. The first section will present a general view of Arizona as a demographic entity without much specific detail regarding the education system except as background. The second section will present as specific a view of the state's educational demographics as possible, with one focus on the issue of who "drops through the cracks," from birth through the Ph.D. Because the state is now engaged in a number of experimental forms of collaboration between educational systems, and because of the major increase in the number of youth in Arizona who will be graduating from high school in the next decade, and will be aspiring, in many cases, to go to college, recommendations will be made to policy makers throughout the system, attempting to plug the gaps through which talent is now escaping, from birth through graduate school.

It is hoped that policy makers at various leadership levels will read not only the recommendations for their segment of the system, but those of other segments as well. It is obvious that our graduate schools can be no better than our kindergartens, but no teacher, administrator or policy leader sees the whole system - only a small number of students can see the whole thing, and they aren't allowed to talk about it! The weakest points in our educational system are the areas between the segments, as no one is directly accountable for the transition from day care to kindergarten, kindergarten to elementary, elementary to junior high, junior high to high school, school to college, college to graduate school, and the transition from education at any final level to the "afterlife" of work and civic responsibilities, families, etc., whenever this transition occurs. Education IS a single system, with each level dependent on the others, but we behave as if each level has no relationship to the others. All this begins to change however. School boards are meeting occasionally with community college boards, exploring "common turf", etc. But it is very clear that there is a very long way to go. The fact that this paper is commissioned by Arizona leadership representing public schools, community colleges and four year institutions of higher education in Arizona puts the state at the forefront of educational strategic planning in 1996. One of the goals of this paper is to present the whole Arizona education "pipeline" from pre-school to graduate school, for the reader to understand what economic and social consequences occur when people are not allowed to continue through the pipeline even though they have the talent to proceed.

For example, the 15 percent of youth who drop out of high school produce over 70 percent of America's prisoners, each prisoner costing $26,000 to maintain each year, while we spend less than $5,000 per student in the public schools. It is statistically true that the chances of a high school drop-out's becoming a prisoner is far greater than the chances that a smoker will get lung cancer. In Arizona, each prisoner sucks away enough money to provide tuition scholarships for 4 students. Over a 20 year sentence, a prisoner will cost the state over half a million dollars just for maintenance, not counting new prison construction, etc. Anything that keeps a student in school through high school graduation is likely to save the taxpayer half a million dollars, increasing as sentences get longer and "three strikes and you're out" becomes more common.

The prevention agenda - making sure that bad things do not happen to people - has enormous pay-off, both economically and socially. Keeping teens from getting pregnant, keeping kids from dropping out of school (as we have seen), keeping people working, keeping families together, keeping kids healthy and motivated to do well, all have an amazing benefit for ALL citizens. (In addition to drop-outs and prisoners, a student who has been in a Head Start program will save the taxpayer eight dollars for every dollar of program cost, in later services the Head Start kids don't need, such as prisons, drug detox centers and unemployment services).

SECTION I

ARIZONA AS A DEMOGRAPHIC REALITY

Arizona is about as transient as a state can get - only 27 percent of its citizens were born in Arizona, while 80 percent of Pennsylvania residents were born in Pennsylvania, according to the 1990 Census. The difference is as night and day - Pennsylvania is stable, low crime rates, cohesive, everyone knows everyone else (almost eliminating the need for street signs, as everyone's been there before), a great place to bring up kids - but bringing a new idea across the state line into Pennsylvania is an illegal act. What goes with comfort, stability and security is a built in resistance to people who suggest different ways of doing things. Arizona, on the other hand, is the second most transient state (right behind Nevada), and is second in overall crime rate, a difficult place to raise children, street signs everywhere (especially "Welcome to Arizona" signs), and very little consensus on how to behave, as the vast majority of its citizens come from somewhere else, in the top ten in suicides (as are all the mountain states plus Alaska), and rather open to alternative ways of doing things (like Oregon) because of a lack of consensus based on history and tradition. Arizona is the quintessential "every man for himself" state for these reasons - each new resident creates Arizona while discovering it! Thus the openness to new ideas - none of the ideas brought from Illinois or New York will "fit" in Arizona, a state which is, in an unfortunate phrase, always "reinventing" itself. Pennsylvania and Arizona are at opposite ends of the continuum of stability/security/solidity and transience/danger/openness. Consensus is always harder to achieve in a highly transient state like Arizona. While in most states minority populations are the most transient, in Arizona, Native and Hispanic citizens are among the most stable, long term residents in the state.

To pursue this a bit more, the average state legislator in the US has 4.47 registered lobbyists trying to see him/her, the average New Hampshire legislator has only .5 lobbyists to see, while Arizona legislators have 28.0 lobbyists each, the highest rate in the nation! Why is Arizona so popular with lobbyists? Because it works. (Incidentally, it has nothing to do with the registration system for lobbyists in Arizona, often cited as the major reason for large numbers of lobbyists). Lobbyists at least are very clear as to how they would like the legislator to behave!

Eighty-three percent of Arizona is owned by governments - federal, state and Indian. (In fact, 13 tribes, representing over 160,000 Native Americans, own 20 million acres of Arizona, and tribal leadership, Navajo, Apache and Hopi especially, is a very important factor in Arizona life and politics, as are long established Latino communities).

Although the state is known for clear, dry air and clean water, some of the facts are depressing: Arizona is 8th in per capita water consumption (the long term results of the Central Arizona Water Project are not yet in) which city residents are now spraying on lawns (which make no sense in a desert) allowing much of it to evaporate, increasing the humidity to the point at which Phoenix now ranks 46th in overall air quality. In agriculture, drip irrigation, a much more efficient system, has yet to make a dent - farmers are spraying water into the air just like suburbanites!

An optimistic factor is that in 1995, Phoenix was the 7th best metro area in the nation in terms of job growth, right behind L.A., New York, Dallas, San Francisco, D.C., and Atlanta. The latest projections from Woods and Poole are that Phoenix will be 5th in metro population growth, 1995-2005, adding 538,960 citizens, and 5th in new jobs created, with 289,030 jobs added. Population growth in the West means annexation, allowing cities to expand along with their suburbs. There have been 28 school annexations right within Phoenix, now a Metro area of over 9,000 square miles, with 120 school annexations in Arizona. In Hartford, the number of school annexations is zero. In the East, cities are generally not allowed to annex territory, and thus are losing clout to suburbs which get most of the new people, jobs, businesses, shopping centers, concerts, restaurants. Cities are left with crime, poor and unemployed people, drugs, failing businesses, and the necessity of raising taxes to survive, making them even less competitive with their suburbs. In the West, cities are not built in concentric circles as in the East, but more as grids, making the line between city and suburbs much less clearly defined, and allowing the city to expand (jobs and people) along with the suburbs. The cities of Phoenix/Tucson grew alongside their suburbs, adding residents, jobs and businesses, etc.

The state's 1993 population was 3,936,000 (23rd), up from 3,682,000 in 1990, and up 7.4 percent from 1990-93. From 1990-94, the net domestic migration (Americans moving in minus Americans moving out of Arizona) was 202,000, while international immigration totaled 40,000. Census projections are for 4,437,000 Arizonans in 2,000, up 20 percent from 1990, and 5,074,000 in 2010, up 14.4 percent from 2,000. Remember that one new job is created for every two new people in Arizona. Most people live in metro areas - 84.7 percent, the 11th highest in the nation. (As a result, Arizona population densities per square mile are low, city, suburb, small town and rural, when compared to the East. The West builds out because of available land; the East has to build up). Arizona at the moment is skewed toward young people - in 1993, 23 percent of residents were under 15 and 13.4 percent were over 65, but by 2020, they even out with 20 percent being under 15 and 19.5 percent being over 65. (Older people vote more often, and if there is one older citizen in need of state services for every one young person, the political advantage will basically go to the older person, in that kids don't vote).

One of the Arizona success stories is the size of the Hispanic middle class, as measured by suburban residency. 95,405 Hispanic suburbanites lived in Phoenix in 1990, the 20th largest number in the nation, representing 16 percent of all suburban residents in Phoenix. From 1980-90, Hispanic suburban populations in Phoenix grew by 67.7 percent - while Orlando's grew 291 percent and Corpus Christi's Hispanic suburban population grew 4 percent! In terms of per capita income, Phoenix drops in rank to 31st, with suburban Hispanic income almost identical to that of central-city residents. (The wealthiest suburban Hispanics live in older, elite neighborhoods along the east coast, outside of Newark, Washington, DC and Bergen-Passaic, New Jersey). However, the lack of income difference between city and suburb in Phoenix means that there is less motivation to make the move.

While the minority population of Arizona is growing and continues to do so, the nonHispanic white population does the same:

	1995	2000	2010	NET
white	3,600,000	3,894,000	4,379,000	+779,000
black	123,000	131,000	143,000	+20,000
Am. Indian	251,000	285,000	346,000	+95,000
Asian	41,000	127,000	204,000	+163,000
Hispanic (of any race)	853,000	1,019,000	1,382,000	+529,000

However, while the state's population grows for all groups, the highest growth percentage comes with minorities, and in actual numbers as well - from 1995-2010, whites increase by 779,000, while "minorities" (including Hispanics) increase by 807,000. The major difficulty is that Hispanics, being of any "race", can be double-counted. (While minorities are 28.9 percent of Arizona's population, they are 40.3 percent of Arizona's youth population, meaning that Arizona gets increasingly more diverse, the biggest increases being in the youngest populations). An important component of Arizona's diversity is its immigrants, the 7th highest number in the nation, with 2.2 percent of all US immigrants. (California gets 40 percent, Texas 11.6 and New York 10.3 percent, after which the percentages fall rapidly). During the 1990's, each state has had fluctuations in the number of new immigrants - Arizona had 23,000 in 1990, 40,000 in '91, 15,800 in '93 and only 9,800 in '93, one of the lowest years in the last decade for all states. In 1992, 10,779 of Arizona's 15,800 immigrants were from Mexico; Vietnam was second with 892. The biggest proportionate increase was in immigrant school age children, from 25,962 in 1980 to 37,385 in 1990, up 45 percent from 1980-1990, while the US increased 23 percent.

While this might suggest an increase in LEP, or limited English proficiency, the increase in LEP 3-4 year-olds in Arizona was from 58,000 in 1980 to 61,000 in 1990, a very small increase of only 3.5 percent, while the nation increased 30 percent in LEP during the decade. What did increase in Arizona was the percentage of 3-4 year olds in poverty, up from 18.5 percent in 1980 to 24.3 percent in 1990 while the nation only went from 18 percent in poverty in '80 to 19.9 percent in '90. Among the very young, Arizona is clearly losing ground in terms of poverty levels. From 1990-93, 15.6 percent of all Arizonans were in poverty on average, versus 14.7 percent of the nation.

Of Arizona's 3.9 million residents in 1993, 84 percent lived in metro areas, the 11th highest in the nation, as we have said. In fact, the Phoenix-Mesa Metro Area had 2.2 million of the state's 3.6 million residents in 1990, making Maricopa County a dominant force. While the Metro grew from 1.6 million in 1980 to 2 .2 million, Phoenix City also grew, from 790,000 to 983,000 during the same period. (Normally, the city is one third of its metro; Phoenix City is almost half the Metro, giving it far more bargaining power with suburbs than an Eastern City like Hartford, only one fifth of its Metro, giving the suburbs 4/5ths of the political clout). In addition to the 2.2 million in Phoenix in 1990, Tucson had 667,000, and Las Vegas Nevada/Arizona had 853,000. (Los Vegas plays an ever increasing role in Arizona politics and economics). 14 major metropolitan areas in the US have crossed state lines, creating a major governance headache. The three Metros constituted 3.7 million of Arizona's 3.9 million people in 1990. When you leave these three Metros, population densities decline very rapidly, making the delivery of social services very inefficient and costly. (Twenty meals on Wheels can be delivered in twenty minutes in an elderly condo development in Phoenix; in Gila County it could take you all day to deliver twenty Meals on Wheels if you have to drive 7 miles between stops. The lower the density, the higher the cost of delivering any social service.) While the US averages 73 people per square mile, and New Jersey averages 1,062, Arizona averages 35 people per square mile. Not only is Arizona a low-density state, Phoenix, Tucson and Las Vegas are low-density metros. Concentrated poverty is a big problem, but low density poverty is far more expensive and difficult.

However, the best argument for continued growth in the three Metros in the future is the ratings in Places Rated Almanac, 1993. Of the 343 Metros in the study, Phoenix is the 38th best overall, while Tucson is the 29th best, and Las Vegas is the 144th, about in the middle of the pack. (1=best rating, 343=worst)

	Phoenix/Mesa	Tucson	Las Vegas
Cost of living	23nd	194	226
Jobs	3rd	32	12
Housing	253rd	232	265
Transportation	108th	106	156
Education	119th	50	116
Health	106th	74	318
Crime	281th	299	250
Arts	21st	84	115
Recreation	21st	10	33
Climate	181st	97	149
Total rating	38th	29th	144

Before the reader gets the wrong impression, Places Rated Almanac uses multiple criteria for each rating, including higher education institutions as well as public and private schools in its education rating. It is higher education that gets Tucson its rank of 50th best, not the Tucson public schools. (In addition, there are many choices of schools in Tucson, with 13 Catholic schools and 59 other private schools, and having options is valued by this rating system.) Cost of living and housing are major problems in all three Metros, as is crime, an increasingly important factor in corporate and individual relocation decisions. Jobs are a key advantage for Arizona, as is recreation. Transportation is middle range, education, at least higher education, is excellent in Tucson, a little better than average in the other two, health care is excellent in Tucson, better than average in Phoenix, and among the worst in Las Vegas, the arts shine in Phoenix and are better than average in Tucson and Vegas. Climate is measured on the number of days/year you must heat or cool your house to 70 degrees, which helps to explain the ratings - in San Diego, you can open your door most days and have the outside temperature in the 70's and no rain.

About one quarter of all retirees who have moved have gone to Florida since 1960, although the state has lost ground during the 1980's. California's share has declined from almost 14 percent in 1960 to 7 percent in 1990, while Arizona has gone from attracting 3 percent of retirees in 1960 (ranking 6th in retirees) to 5.2 percent in 1990, ranking third. While young retirees (the "active elderly") are a net asset to any state, in that they are physically and fiscally independent, and pay more in taxes than they need in services, older retirees are just the reverse, and can become a significant drag on a state's economy. Most retirees live in a "mailbox economy" with money coming not from wages but through the mailbox in dividends and Social Security checks, of no use to governments until the elderly person cashes the check and (perhaps) spends it.

We can assume from this review that Arizona will continue to be attractive to retirees, younger families and to businesses in the future. Indeed, the Census projects that Phoenix/Mesa will be the fifth most rapidly growing population in the nation, 1995-2005 (up 538,960) and will also be the fifth largest in number of new jobs created in the same time period, 289,030 - one new job for every two persons moving in. If you consider the 20 plus percent of in-migrants who are children and about 20 percent who are retirees, you have almost one new job for every new worker! However, given the tourism industry in Arizona, producing very large numbers of

jobs for clerks, waiters/waitresses, janitors, room cleaners, cashiers and security guards, all of which can be done by high school drop-outs at very low wage levels, job growth is not necessarily economic growth. (Arizona ranked 37th in per capita income in 1993, at $15,921, but also ranked only 43rd in per capita income increase from 1990-1993). While Arizona ranks 22nd in federal funds received, it ranks 9th in the percentage of federal funds from military sources. These military jobs are often quite lucrative, but given downsizing trends in the military, they are also unstable. While job increases in Arizona have been among the nation's highest, transiency, which creates acceleration in crime and environmental degradation, family instability and youth poverty, may be the other side of the same coin.

Arizona has had a fairly good decade in terms of economic development (Gross State Product, new jobs created, etc.) but these financial blessings are not evenly distributed in income development among the people - Arizona has the 26th largest Gross State Product, and the 37th largest per capita income. (To be fair, any state with a high percentage of children will be lower on per capita income measures, as you're dividing all wealth by many children who didn't contribute economically, although each one was a "capita". Even with this correction, Arizona income is less evenly distributed than the US average). When we look at social development - children in poverty (way over the US average), teen pregnancy (highest rate in the nation, according to Kids Count), high school drop-outs (second highest), the 8th highest child death rate and the 4th highest percent of teens who are not in school, are not working and are not in the military - you get the image of no progress for a decade. Poverty among minority youth is a particularly vexing problem in Arizona, and the rates are going up. Rural poverty is another particular problem in the state.

In Part I, we have looked at a wide variety of data about Arizona, to get a general sense of the nature of the people and of the state. In Part II, we will attempt a more focussed analysis of Arizona's educational system, within the context we have sketched thus far.

SECTION II

THE ARIZONA EDUCATIONAL PIPELINE

The point of this section is to develop information all the way along the education pipeline, to find places where the state is losing talent, and where people are excluded from further advancement through no cause of their own. We can start with pre-school issues in Arizona, and move to doctoral and professional degrees at the other end of the pipeline.

Arizona's Pre-School Children

Large numbers of Arizona's future students are in trouble before they even knock on the kindergarten door for the first time. Poverty is increasing for Arizona's 3-4 year olds, from 18.5 percent below the poverty line in 1980 to 24.3 percent in 1990, a far more rapid increase than in the US. That's 14,680 poor pre-school kids in 1980 and 27,833 in 1990. In 1992, 68,829 live births occurred in Arizona, about 9,000 to teen mothers, and 17,207 to single mothers (including most but not all of the teen births.) To be born to a single mother, especially a teen age mother, is to be at risk, in that the household income of a single mother in Arizona is about one third that of a family with both parents in the home, roughly $17,000 to $44,000. Also, most single mothers are not as well educated as the state norm, and many are working one or more jobs at minimum wage at best. (About 70 percent of children under 5 have mothers in the work force, and our "risk group" above is probably closer to 80 percent working, and more than half of these working single mothers are below the poverty line even though they hold at least one full time job.) Thus, about one third of all the babies born in Arizona are born into poverty, even though a majority have mothers who work full time (at minimum wage jobs). The state (in the form of the taxpayer) will pay a heavy price for this loss of talent, as will the business CEO who may well find shortages of highly skilled workers.

For such women, raising Arizona's future workers and voters, high quality, accessible and affordable day care is a necessity. Figures on day care are sketchy, but it would seem in Arizona that the need is far larger than the supply. ERS reports that the higher the household income, the more likely children are to be in center-based day care rather than in home care (most day care in the US occurs in someone's living room). The lower the household income, the less the likelihood that child care of any sort is available - the greater the need, the smaller the supply. Even for Arizona males, a higher percentage than in the nation earns less than the poverty level for a family of four, according to Kids Count data. Also, of our 68,829 kids born in Arizona in 1992, 13,600 are in households in which a language other than English is spoken; in 9,500 Spanish is the major spoken language. However, the increase for such children is only 3.5 percent 1980-90, compared to 29.9 percent for the US, according to ERS. 13.8 percent of Arizona's children lived in households without a telephone in 1990 compared to 7.8 percent of the nation's kids. Finally, pre-school minority children are more often poor than are white children. Hispanics have the highest number of poor pre-school children, then whites, then American Indian, then black, then Asian. (Remember that Hispanics can be of any "race", and some double counting of Hispanics as whites is inevitable.)

Putting these risk factors together, it is easy to see why Arizona ranks 45th among the states in quality of life of its children. Although most of their measures are for school-age children, it is clear from the ERS data that pre-school kids are no different. Data from the Census indicate that Arizona is famous for deferring maintenance on its roads and bridges; we are suggesting that Arizona also defers maintenance on its children, an even more expensive mistake in the long run.

As we begin our pipeline, we can say that of every 100 pre-school children in Arizona, 5 will be unable to enter public schools because of severe handicapping conditions, both hereditary in nature and having cocaine or alcohol - addicted parents, 6 will choose private schools for some or all of their education, and about 2 will be educated at home, although this last is an approximation. Transiency is a major problem in the pipeline - 56.9 percent of Arizona's residents in 1985 moved between 1985-1990! Six in ten movers were still in Arizona in 1990, but 4 in 10 movers left the state. Because younger adults move more often (taking their children with them), about 20 of our initial 100 kids in the pre-school "pipeline" will have moved out of the state before they would have started kindergarten in Arizona, to be replaced by another group that had moved in, while another 30 would be in a different school or school district by the time our "class" of 100 actually entered kindergarten.

So before kindergarten, 11 of our 100 "class" will not attend public schools because of handicaps and private school choice, 20 will have moved out of Arizona, and 30 will be in a different Arizona location although they will still enter the Arizona pipeline, leaving only 69 of our original 100 to register for kindergarten. Higher education has little appreciation of the issue of trying to predict who will replace the 20 kids who moved out, in that there is little time to shift facilities and teachers to be available in the school districts their replacements will actually move into. Many teachers will tell you that in September they start with 26 children, next June they will still have 26 children, but 24 of the 26 will be different people. There is nothing remotely like this in postsecondary education. In addition to these factors, 22 of our "class" of 100 pre-school kids will be raised in poverty, 25 kids will be raised by a single mother (much overlap here), 16 will have no health insurance, only 20 will have one or both parents who are college graduates with a B.A., about 10 will have one or more parents who did not finish high school, 20 will come to school without having heard English spoken at home, 14 of the 20 will have heard mainly Spanish. These risk factors in our pre-school "pipeline" tend to multiply - if you have one, you are more likely to have more than one, etc.

A reasonable guess would be that 40 of our 100 "class" (even after the replacement of our 20 who moved out before kindergarten) would be predicted to have difficulty in the early years of school, even before they have knocked on the kindergarten door! We have not judged their willingness or ability to learn - none of these risk factors were caused by the children. Almost all were accidents of birth which they could not influence. How many of our 40 "at risk" pre-kindergartners have unusual talent in math, science, the arts, languages, technology? Even after The Bell Curve, no one can be sure. What we can be sure of is that the chances of their developing the talents they have are heavily diminished through no fault of their own. Poverty is the best predictor of at risk kids in Arizona, not ethnicity - many ethnic minority kids do very well, fewer poor kids do. But however disadvantage is defined, the state pays a heavy price for ignoring it.

The Arizona Education Pipeline Begins: Elementary Education

Arizona is one of a number of states in which lawsuits have been brought by tax-poor school districts which cannot generate tax revenues comparable to those of wealthy school districts. The argument is usually that schools are unconstitutional, violating the Equal Protection clauses of the state's Constitution. The schools of Kentucky, Texas, Arizona, and others, have been declared "unconstitutional", although only Kentucky has had

to implement the court decision. Providing an equal income "floor" to every student in Arizona's public schools would be the biggest boost for education equity in the entire educational pipeline, although higher education leaders have not often perceived it this way. Most states have hedged on carrying out this court decision because there is no court order with a date certain and "teeth" for noncompliance. Since the 1994 decision in Arizona, the legislature has come forth with only minimal funding for emergency repairs, but no preparation for the "uniform floor" of finance under every Arizona public school student. If Kentucky is representative, nothing will happen in Arizona until the court order with a date certain and teeth. When this will happen is anybody's guess.

We can now turn our attention to the years of elementary education, the first example of the pipeline enlarging for some young people and closing up to others. Arizona had 455,350 elementary students in 1989-90, and 543,024 in 1994-95. This increase of almost 100,000 students in only five years is obviously headed toward secondary and postsecondary levels. (Indeed, for the above years, secondary enrollments increased from 162,244 in 89-90 to 190,936 in 94-95.) Projections of children 0-5 show continuing increases, suggesting that Arizona does not have a "Boomlet" of short duration but rather a longer period of increasing school age, and of college age, youth. It is also clear that Arizona's school age population, 40.3 percent "minority" in 1993, will become a "minority majority" population within a decade. Poverty rates are not decreasing in any segment of the educational pipeline in Arizona. Public school funding in Arizona is divided 8.8 per cent from Federal funds, 42.2 percent from state and 49.1 percent from local funds in 1994-95. This is considerably less state responsibility than the national average, and more responsibility on local tax revenues, even though the disparity in district's ability to raise revenues is about as steep as Kentucky's. (Nationally, state and local revenues contribute 46 percent each.)

Unfortunately, there are few analyses nationally that separate out elementary, junior and senior high, on either teacher salaries, achievement scores, or almost any other variable. Also, because most states don't even begin their count of drop-outs until the 8th or ninth grade, we lose the data on elementary and junior high students who drop out of school before the count has even begun. There is some achievement data by state. Kids Count suggests that in 1992, 43 percent of US 4th graders were scoring below "basic" reading level, while 49 percent of Arizona 4th graders were below "basic," about what one would expect from a state ranking 45th in quality of life of its children. By the eighth grade, NAEP reports the following results in math achievement, first for Arizona, then the US in 1990:

	1990 Arizona	US
Average proficiency	259	261
Numbers and operations	264	266
Measurement	257	258
Geometry	256	259
Data Analysis, Stat. Analysis	258	262
Algebra and functions	258	260

In the 1994 NAEP Reading Proficiency data, with a national average of 212 out of a possible 500, Arizona scored 206, ranking 40th among the states in reading proficiency. While 16 percent of the nation's schools reported at least moderate absenteeism, 34 percent of Arizona's NAEP schools did, a crucial issue for the state.

While nationally, 65 percent of NAEP teachers reported getting all or most of the resources they need, 63 percent of Arizona's NAEP teachers so reported. 30 percent of US NAEP teachers say they ask students to write about what they have read every day, 33 percent of Arizona NAEP teachers do. 69 percent of US teachers let students read books of their own choosing and 75 percent of Arizona's teachers do. In terms of students, 54 percent of US students report reading more than 10 pages in school and for homework each day versus 58 percent for Arizona, 22 percent of the nation's kids say they watch 6 hours or more of TV a day and 16 percent for Arizona, 45 percent of US students say they read regularly for fun on their own time and 44 percent in Arizona.

While Arizona fourth grade math scores are quite close to the US average for most skills, the absenteeism numbers in the NAEP reading assessment are the highest in the nation, tied with Guam for last place! Particularly for students who come from non-English speaking homes, with parents who are poor, nonreaders, or both, absenteeism is highly related to dropping out of school permanently. (If an elementary school child is held back to repeat a grade, the chances of that child dropping out of school doubles. Repeating a grade is the normal treatment for elementary students who are having difficulty with English in the early grades.) Partly because of the factors we have identified, especially holding students back to repeat a grade and very high absenteeism rates, Arizona's 1992 drop-out rate was 12.6 percent, the second highest in the nation, topped only by Nevada, the most transient state. There is a striking relationship between the transiency of the student body and the drop-out rate. Iowa, North and South Dakota, Pennsylvania and Minnesota all have stable student populations and the lowest drop-out rates.There is also a critical shortage of trained bi-lingual teachers at all levels of K-12. Changing the certification requirements to require one course in conversational Spanish is not going to do it - there are many techniques which will help the teacher develop the two major qualities of bilingual instruction - consistently improving subject matter gains while the student acquires English as their major language. (The critical court decision - Lau vs. Nichols - does not affirm that all instruction be in English, but that students be instructed in a language they comprehend. Within three years, virtually all instruction should be in English. The sad thing is that now that research has demonstrated without a doubt that bilingual programs are effective for most students, there seems to be a widespread hostility to them, along with the "English only" movement. (For references, see Hodgkinson, Hispanic Americans: A Look Behind, A Look Ahead, 1996.)

The most important factor in the Arizona education pipeline so far is having the highest absenteeism rates in the nation, plus the second highest school drop-out rate. This completely wipes out the favorable reports on low TV watching reading for fun on students' own time. There's no gain in letting students choose the books they read in school if they're absent! If these patterns of absenteeism are laid down as early as the fourth grade, there is bound to be a high drop-out rate later on, as is indeed the case, as we have already seen. In fact, an absentee student should be thought of as "practicing to become a drop-out."

In most other ways, Arizona's public schools are "a little below average." Per student funding in 1994-95 was $4,304, about a thousand below the US average of $5,879. Teacher salaries were $32,090 in Arizona, $36,933 in the US. School funding is split 8.8 percent federal, 42.2 percent state and 49.1 percent local, putting more load on local revenues and less on the state's, as we have seen. 22 percent of the state's total budget are allocated for education versus 20 percent for the US. Compared to higher education, the percentage of decline in state funding for public schools has been much greater, although both have declined in dollars in the face of enrollment increases. While investment in K-12 education is below the nation, student achievement in elementary school, as least in reading and math, is even lower than the dollar investment would predict, perhaps because of very high absenteeism, drop-out rates, poverty rates, and the other factors that forecast more trouble further down the pipeline.

Secondary Education

By the time students have passed through elementary school, a new set of factors begins to change the educational pipeline. In the early years, a student had one or at most two teachers from whom they learned everything; by high school, teachers are subject matter specialists and students are very much more "on their own". Their own incentives and discipline matter more to their performance. (Junior high, which exists in a profusion of grade levels and subjects in the US, is obviously in the middle - indeed, many such schools are now called Middle Schools to make clear that they are not just high schools for smaller people.) But the longer the student stays in the education pipeline, parental educational level increases as an important educational predictor of student achievement. The home environment increases in importance as well. (If one examines homes of eighth grade students with three kinds of reading materials available - books, magazines and newspapers - one finds that Arizona ranks 44th in this important educational prerequisite.) Many students succeed because of, and some in spite of, their home environments. Without reading material to fuel discussion, it's hard to see how learning can take place regularly in the home.

While SAT scores are not a good indicator of school performance (less than half of US high school graduates take them), there are precious few other indicators of performance through the high school pipeline. Arizona's SAT's are actually above the average, 448 in verbal in 1995 versus 428 in the US, 496 in math versus 482 for the US. What are we to make of this, given the below average elementary performance we have indicated? The key is the percentage of high school graduates who take the SAT - only 27 percent in Arizona versus 41 for the US. A general rule is, the lower the percentage taking the SAT, the higher the scores. The highest 1995 scores in the nation are in Iowa, with 583 math and 516 verbal, but only 5 percent of Iowa's high school graduates take the SAT, and those are the ones going to Ivy League colleges which demand the SAT. Connecticut, a very wealthy, well educated state, has low SAT's because 81 percent of high school graduates take them.

However, on a similar test, the ACT, Arizona students are again above the national average, scoring 21.0 in 1995 versus 20.8. The ACT is the primary test, meaning that more Arizona students take it than the SAT. It is safe to say that a majority of Arizona high school seniors have taken one of the two tests, and that for both, the scores are above the US average. Although the NAEP scores are only available for 4th graders, it is clear from those low performance indicators, that a majority of Arizona seniors are doing "better than expected", judging from their 4th grade scores. (Remember, however, that neither the SAT nor ACT measure what is actually taught in America's schools.) But it seems that of those who do progress through the pipeline to high school graduation, Arizonans do at least as well as those from other states on the only intra-state comparison there is at present. There are no effective measures to indicate the level of readiness of those who enter community colleges, and no way to know how many moved to another state and graduated from high school there.

There are few studies of drop-outs from secondary schools, but from those that exist, it is clear that most drop-outs are not flunk-outs. (In some states, a 10th grader whose family moves to another state is considered a "drop-out" by the state of origin. About 20 percent of Arizonan families moved out of state between 1985-1990.) Many students who have done well academically nevertheless drop out of high school for a variety of reasons, including jobs and starting families. Many return to school after one or more years, many others receive a GED later on, most will probably receive a diploma from another state. A reasonable estimate would be that over half of Arizona's high school drop-outs eventually receive a high school diploma or equivalent, and many will continue through the pipeline to postsecondary institutions. But that's half of the second highest drop-out rate in the nation, 12.6 percent! In addition, according to the July, 1996 issue of Postsecondary Education Opportunity, Arizona had the largest decrease in high school graduation rates in the nation, down from 72.7 percent in 1992 to 63.8 percent in 1994. Actually, drop-out rates have been increasing since 1983.

Of the 1994-95 secondary enrollment of 190,936 students, approximately 24,000 additional young persons were not counted because they had dropped out. Even if half get back into the education pipeline at some time and place, the other 12,000 will probably have to settle for a diminished future.

Sadly, there are few state comparisons on academic achievement available. The Condition of Education, 1994, has in the index a section on student achievement, consisting of one item on Advanced Placement and 12 items on the SAT. That's all, as there are no national tests of subject matter for secondary school subjects. What we can infer from SAT/ACT scores is that a majority of Arizona seniors seem slightly better prepared for college than in the nation itself. Even if the pipeline expands with high school graduates, which it surely will, there is no reason to believe that higher education quality would suffer.

What we also know is that the increase in high school students in Arizona was the 3rd largest in the nation - up 11.3 percent from 1990-93, while elementary enrollments went up 10.6 percent, ranking 6th. Increasing school enrollments in Arizona are not a temporary aberration, but a near-permanent reality. Even with the second highest number of high school drop-outs in the nation at 12.6 percent of all Arizona 16-19 year olds, (right behind Nevada) the increases in high school graduates (and therefor those eligible for postsecondary education) can be assured for at least 15 years, as the entire pipeline has enlarged from age 3-18! The people who compose the trend are already here. Also, like many states, Arizona is adopting a new set of basic skills tests which must be passed for a diploma to be awarded, starting in 2002. The tests will include reading, writing and math tests for grades 1-3, 4-8, and 9-12. As of this writing, no allocation of money has been made to either develop the tests or help the schools to prepare to meet these standards. (A previous state test was suspended in 1995 on questions of validity as to what was actually being tested, a common problem in such testing programs.)

Arizona Postsecondary Education

This is a point in the pipeline at which some constriction occurs. Arizona ranks 46th in the nation in the chances that a 19 year old will be going to college, a combined measure of high school graduation rates, and going on immediately to college, as stated in Postsecondary Opportunity, cited earlier. (However, this analysis leaves out those going to another state for college.) Arizona ranks 42nd in high school graduation rates in 1994, and 48th in percentage of high school graduates who go directly on to college in their state. In 1995-96, Arizona graduated 38,669 high school seniors, of whom about 2,000 were from private schools, according to the Chronicle of Higher Education. Roughly 3/4ths of this group enrolled in some Arizona institution of higher education the year after graduation. How many went out of state is not known, but probably 10-20 percent of high school graduates in Arizona did not go directly on to college or university. Again, many take one or more years off between high school and college, to work to cover college costs, etc. The pipeline constriction at this point is probably about 10-15 percent of high school graduates in Arizona who do not pursue further education at any time.

However, changes in Arizona university admissions requirements made three years ago, including adding a fourth year of math, adding calculus, 2 years of a foreign language as well as two or three years of lab science, are proving difficult for many school districts to meet, given their inadequate budgets to supply the extra specialized teachers that will be needed. Phoenix Union High School District is one of many that have not been able to 0 up to meet these new requirements which go into effect next year. The difficulty of meeting these requirements falls disproportionately on poor, rural and central city school districts, not on suburban schools. Those who cannot meet two (or more) of the admissions standards will have to attend community colleges, regardless of their GPA in high school. Virtually anything that reduces access will also affect achievement. A

"conditional year" at a university may make better sense as an option than an automatic assignment to a community college.

This compares favorably with national estimates - indeed, the Arizona pipeline is more open to allow some postsecondary education for high school graduates than most other states, but it has the second largest percentage of youth who do not graduate from high school, about whom nothing is known specifically. (However, as we have seen, almost 80 percent of America's prisoners are high school drop-outs, and each prisoner costs an average of $25,000 just to maintain. We know at least that high school drop-outs are very expensive to the taxpayer - every prisoner in Arizona takes away, every year, enough tax money for four full tuition scholarships to any institution in the Arizona University system. A prisoner with a 30 year sentence will consume the money for 120 young people to go to college. State budgets are, to a considerable extent a poker game - if the money goes to corrections, it can't go to education.) In most state legislatures, showing that you are tough on crime will help your election campaign far more than being in favor of budget increases for education.

The very high demand in the Phoenix area for nontraditional adult education delivery systems - the University of Phoenix is one of many - can be explained by one little known fact - Arizona is third in the percentage of adults who have some college credits but no degree! 25.4 percent of Arizona adults fit this category surpassed only by Nevada and Washington State, as of 1990. This also explains Arizona's being 47th in the percent of students who are full time in 1992 - only topped by Nevada, Alaska and California. Only 44.9 percent of Arizona's students were full time, the US being 56.3 percent in 1992, according to the Census. (In Nevada, only 33.1 percent of students were full time, down to 32 percent in 1993.) One can infer a bimodal student age distribution in Arizona - many "conventional" students, right out of high school and 18-22 years old, and a second group, in their late twenties to forties, usually with jobs and families, seeking new skills for new jobs. Indeed, as one moves from east to west, one finds that public institutions of higher education increase in their percentage of student load. In the East, a flexible mix of public and private institutions allows some sharing of the load of enrollment increases; in Arizona the load - and responsibility - is heavily in the public sector of higher education. The following profile of Arizona institutions should make the point:

	Institutions	Students	% Minority	Tuition/Fees
Public 4 year	4	95,346	18.5%	$1,819
Public 2 year	18	151,408	26.8%	$729
Private 4 year	17	24,469	24.4%	$5,881
Private 2 year	3	1,077	32.2%	n/a

(Chronicle of Higher Education, ALMANAC, September 1, 1995 - data year, 1993)

While the number of institutions is not large in Arizona, they are large in size - Arizona State University was the 6th largest in the US with 41,250 students in 1993, The University of Arizona is 17th with 35,279, Pima Community College is 36th with 28,268, according to the Chronicle. In any state with a high population concentration, there will tend to be a similar concentration of institutions of higher education - the "new" campus of the Board of Regents, set to open in 1996 with expectations of serving 10,000 students in its early years, is located in Tucson. (In that Las Vegas is the third largest metro in Arizona, it remains to be seen how Arizona and Nevada coordinate higher education issues). The Arizona Board of Regents, seeing the enrollment pressures we have already discussed, have taken steps to get students through the system quicker: a 120 hour limit

on credits for bachelors degrees, reducing the average time to graduation by six months (when in the nation most students are taking well over four years to graduate), a freeze on credits for in-state tuition of 160 credit hours, after which out-of-state tuition rates apply, and tougher admissions standards will be implemented in 1998, including math and foreign language increases. The legislature has so far invested in raising faculty compensation and in some new construction, such as the new Tucson campus and the ASU academic center on the now retired Williams Air Force Base.

One of the most important "pipeline" issues, after access to higher education, is access to the next level, especially transfers from community colleges to four-year institutions. Although no state has achieved the level of transfers originally proposed in Master Plans in California, New York, Illinois and Florida, to mention just a few, there is some encouraging news from an (excellent) study of the issue from Pima Community College, dated March, 1993. Not only is the College fully representative of ethnic minorities within the County, retention rates in Pima Co. Community College programs were the same for ethnic minorities as for nonminorities, transfer rates to the University of Arizona were similar, and minority transfers had the same GPA as nonminorities. (In addition, the study helps us understand what "reasonable progress toward the degree" is for community college students - 50 percent of original enrollees were back for the second semester, 14 percent were still in after 4 years, and only 6 percent were continuously enrolled for the whole 4 years. In addition, the study clarifies the issue of students who never intended to achieve a degree, yet whose educational objectives are fully met - they are clearly neither failures nor "drop-outs".)

In addition, the pipeline is broadened by allowing high school students to enroll in community college courses while completing their high school diplomas, helping them move more quickly through the educational pipeline. In 1995, 8,262 secondary school students took advantage of this program. An analysis of courses taken at each of the community colleges shows high school students enroll in the following "bread and butter" college courses - math, science, English, history, computer systems. Many students are also taking a variety of languages, from French to Spanish to Conversational Navajo! Common data formats followed by each of the community colleges make the November 1995 report much more useful. While many of the students were Advanced Placement or Honors students in high school, getting some requirements out of the way to reduce their higher education time and expenses, many others were probably students at the middle of the academic distribution, finding out how hard college work is, etc. This program is very likely to increase the productivity of the pipeline without reducing the quality level in higher education, and is an excellent model of active cooperation between public schools and community colleges. It is also likely that for some school districts, this is a way of meeting the new university entrance requirements without increasing their debt load through student loans or their time in college.

In addition, the Arizona Board of Regents has developed system goals for minority students, particularly in (a) increasing the percentage of Arizona high school graduates who will be directly admissible to the universities, (b) to increase the recruitment of such minority students, and © to bring minority graduation rates from the university in line with those of nonminorities. Efforts are now underway, coordinating these three goals with public school leadership. (It is clear from the Regents 1994 Minority Student Progress Report that ethnic groups vary considerably in the percentage of high school graduates who are eligible to attend universities.) However, the percentage of minorities in the University System has steadily increased, from 11.4 percent in 1987 to 18 percent in 1994, and transfers from the Arizona Community Colleges have increased from 18.3 percent minority in 1990 to 22.6 percent in 1994. No one can be sure of the impact of the increased university admissions standards to take effect next year.

As of 1993, 40.3 percent of all Arizona's public school students were minority, while the nation was 34 percent. The Chronicle of Higher Education reports that 23.8 percent of all Arizona higher education students were

minority, 18.5 percent in public four-year institutions and 26.8 percent in community colleges. The national figures are 23.4 percent minority overall, 21.3 percent at four year, and 27.7 percent in community colleges. Given that Arizona's public school students are 6 percent more diverse than the US, we would expect Arizona higher education to be 29 percent minority, 6 percent above the US minority average for higher education of 23.4 percent. The opposite is true - Arizona four year institutions are below the diversity levels for US institutions for their type, and even community colleges are about one percent below. It is likely that substantial progress is being made in Arizona higher education since these 1993 data, but these are the last years for national comparisons, and the last year for the Board of Regents Minority Student Progress Report. (Dated 1994, the data are for 1993.) It should also be pointed out that tuition and fees for both public universities and community colleges in Arizona are lower than the 1993 national numbers, a fact that has encouraged access to the Arizona system for all young people in Arizona. Tuition increases would be the worst solution, in that Arizona is more segregated by income than by ethnicity, as the State Supreme Court school finance decision has suggested.

At the graduate level, 13.4 percent of graduate enrollment was minority in 1994. Of graduate degrees awarded 1993-94, 2,647 were awarded to minorities and 15,178 to "non-Hispanic whites". (You are Hispanic if you say you are.) Breaking it down, with 14.6 percent of bachelors degrees going to minorities in Arizona, 10.6 percent of masters degrees, 8.6 percent of doctorates and 22.3 percent of the 462 professional degrees went to minorities! As with the National Research Council's data, first-generation students of any ethnicity tend to perceive a degree in law or medicine as being of higher status that a Ph.D.. in philosophy or history, often perceived as a "white person's thing". Fourteen professional degrees were awarded to Arizona black students, 23 to Asian, 52 to Hispanics, 14 to American Indians, and 339 to "nonHispanic whites". Oddly enough, minorities are a higher percentage of professional degree production (22.3 percent) than they are of bachelors degrees (14.6 percent). (1994 Board of Regents Minority Student Progress Report, Appendix, Table 3.)

SECTION III

CONCLUSIONS: HOW TO IMPROVE ARIZONA'S PIPELINE?

As we said at the beginning, Arizona is an "every man for himself" state, meaning that individuals are responsible for their destiny, that "the best government governs least" by staying out of the citizen's way, that large federal programs only reduce self-initiative, that states should provide fewer services than local governments, etc. Services like AFDC, Head Start, Chapter I may be seen as "coddling people". Some even think of student financial aid in higher education in the same way. At all levels in the education pipeline, from student aid in college to preschool and day care programs, the point is not to "make it easier" for youth, but to "make it possible". This author attended the University of Minnesota as an undergraduate when tuition was $65 a term. The debt a student will incur in going to college today is not well understood by many state legislators from an earlier college-going generation. Financial aid is not "coddling", any more than computers in the schools are.

The legislature, like many others, is in a cost-cutting mode at exactly the moment when a large expansion of youth-related services will be necessary to accommodate a large (and virtually permanent) expansion of youth, particularly minority youth! While public school enrollments increased from 617,000 in 89-90 to 733,000 in 94-95, an increase of 116,000 in five years, state funds for public schools were declared illegal because of differences between rich and poor districts. In terms of the total state budget, public schools have been cut by a higher percentage than higher education, largely on the assumption that local taxes can be raised to cover increases for public schools, whereas for higher education, only community colleges have a local funding base. The legislature's provision of a $30 million "down payment" will only remedy the worst physical disasters in public school buildings, but will not put up a minimal "floor" of investment under each student in public schools, as was required, and implemented, in the Kentucky suit.

Deferred maintenance on school buildings is one consequence, but "deferred maintenance" on young people themselves is a far more expensive and perilous venture (a prisoner costs the taxpayer $25,000 a year, and almost 80 percent of prisoners are high school drop-outs.) While there are costs to action at the state level, there are clear and documentable costs to state government inaction as well. While the impact of increasing student numbers in the pipeline can be reduced by narrowing the pipeline (raise admissions standards for the purpose of reducing the freshman class in universities, raise tuition for the same reason, encourage high school graduates in Arizona to go out of state for college, admit to the universities by lottery, etc.) these are expedients, and will do little to ease the pressures. Arizona will need all the talent it can develop in its young people, causing us to ask the question differently: What are the best, and most cost-conscious, ways of broadening the education pipeline?

1. Reduce absenteeism rates in elementary schools. Focussing on this problem, making school leaders aware of it, making sure that the higher education leadership expresses its concern and willingness to help, would cost nothing. This is a free way to get started on a major problem - the 2nd highest school drop-out rates in the nation. An absent student is "practicing to become a drop-out." Each school that doesn't have one should set up an "early warning system" on absentee students, particularly for low income females who are raising

children by themselves in minimum wage jobs. Given that the number of Arizona pre-school children in poverty has almost doubled 1980-1990, it behooves education leaders at all levels to make the issue of absenteeism visible, as a first step in reducing the high school drop-out rate, the second highest in the nation. Total cost could border on zero. However, the impact of lack of day care facilities for working mothers is such a great force in the lives of many of these children, some attention might be given to this problem, even if costs were involved. If a child is left at home without adult supervision for ten or more hours a week, that child is twice as likely to get involved with addictive drugs as one who is supervised, regardless of household income or age of child. Is child care more expensive than drug addiction?

2. Find out why young people decide to leave high school by developing a better tracking system for K-16. It isn't just minorities who drop out. States with transient populations have high drop-out rates. It's important to be able to track students as well as the highway department tracks driver's licenses! A poll, run by newspapers in Phoenix and Tucson, supported by school and college leadership, plus interviews on local TV talk shows, could find out some interesting answers, as other states have discovered: you can't figure out how to keep them in school until you know why they leave. If the media produce the survey, with the expertise of the social science departments of the universities acting as consultants, they will probably want to let people know the results. Cost in state tax dollars: zero. Cost of the tracking system: developing common reporting forms and a central data repository.

3. Increase dual enrollment programs. Allowing a high school student to take high quality, entry-level community college courses in high school settings could have many results, almost all positive. Many could get a leg up on college credits and costs, others could get a better feeling of the standards required in doing good college work, and could make better decisions about whether to attend college or not, what kind of institution, etc. By letting more good students get ahead of the enrollment "tidal wave", some impact could be reduced. Cost in state tax dollars: zero. (This program also could serve as a model to other states with enrollment increases predicted.)

4. Encourage Arizona public higher education to increase its "market share" of adults in the state who already have college credits, but no degree. The University of Phoenix was not located in Phoenix by accident - this sort of student is one of their major markets, in Phoenix and around the nation. Awarding a college degree to a person who needs only half the course credits of a student just beginning college is a cost-effective degree, in terms of the total cost of instruction. In addition, it is an inexpensive service to an increasing number (potentially) of the taxpaying and voting residents of Arizona. In addition, the bulge in the pipeline might be reduced. Cost in state tax dollars: zero.

5. Increase the number of CLEP, GED and AP exams in Arizona. Anytime the state can award an honest academic credit for knowledge and skills already possessed without paying for instructional costs, the pressure on higher education is reduced. In addition to Advanced Placement, advanced credit can usually hasten a student's progress to the degree. Regents College in New York State is an "examining university" offering no courses, but some of the most rigorous exams in the nation. Degrees are awarded for what the student knows and can do, not for the number of hours of "seat time". Regents College is fully accredited and the Regents of the State University of New York are its trustees. Something like it would be very useful in Arizona to reduce the pipeline expansion. Cost in state tax dollars: zero.

6. Increase the number of "three way" collaborations. At present, the University System is working effectively with schools, community colleges are working effectively with schools, but there are few examples of schools/community colleges/universities working together, even though the possibilities are many and exciting. Progress on developing common reporting systems and databases will make these collaborations easier

and more effective. In addition, each sector needs to be aware of the "pipeline" issues of the other two. Cost in state tax dollars: zero

7. Universities should be rewarded for decreasing their dependency on state funds, as well as for increasing student minority populations. It seems unlikely that state higher education budgets will increase as was the case with the original Baby Boom. Community colleges have some funding flexibility, although the amount paid by the student cannot increase much without losing equity, but universities have a variety of funding mechanisms in addition to tuition and endowment. Any university that increases its non-state based funding should be rewarded by having no cut in its state revenues. In fact, it is time in most states to begin to decide (a) what it is that secondary schools, community colleges and state universities are supposed to do, (b) develop indicators for those activities as "benchmarks" for whether they are being done or not and how well, and © develop rewards for successful performance. Those activities which increase minority passage through the pipeline with minimal increases in cost and no decrease in quality are those which should be rewarded by state government in Arizona. (Trading on the university's reputation, some institutions are even considering the university-funded business card, used by the faculty member to increase his/her consulting income, to be university property with a "reverse overhead" to be paid back to the university on every dollar of consulting income earned by the faculty member.)

8. Being born into poverty is a more pervasive factor in being "at Risk" than being of a particular ethnic background. Today, 20 percent of black households have income levels above the white median, and as of mid-September, 1996, black students were graduating from high school at the same rate as whites, while Hispanics actually declined by two percent. Asians do better than "whites" on most education measures. Minority suburban populations are expanding while minority urban populations have plateaued, mortgage loan approvals for minorities are moving toward the white average, minority college graduates are increasing rapidly in the adult population. Minority poverty is still a major issue, in that Hispanics and Native Americans have a higher poverty rate than "whites", but white poverty is also handicapping, even if the percentages are less. Arizona has doubled the number of pre-school children in poverty, from 14,000 in 1980 to 27,800 in 1990. These children are at risk of failure in school and in life, regardless of their ethnicity. The current minority access programs should not be curtailed, but supplemented to insure that all students in poverty have a chance of a equal start when they enter school.

Increasing access for minorities at all levels of the education pipeline is important, but many minority youth are living in suburbs with college graduate parents, and do not need special concern. Today, there are hundreds of places in America in which families of all ethnic backgrounds live together as a community. There are no places in which rich and poor families live side by side as a community. Special concerns should be focussed on those who need the concern most, which would have to be the 27,800 pre-school children in Arizona being raised in poverty. How was it that the number of such kids doubled in just ten years? What will the state have to pay if these children, regardless of their ethnic background, drop out of school at very high rates? The answer is $25,000 a year for every one who becomes a high school drop-out and goes to prison. If anyone needs pre-school, it is these children. You can pay $3,000 a year for pre-school for them now, or $25,000 for as long as their prison sentences are later on. The prevention agenda is cheap, localized, community-based, and very effective. As we have seen, you can pay now or you can pay later. This is an issue of concern for higher education as well as public schools, as the prisoner takes money away from everybody. That is the central message of the education pipeline - you pay for every person who progresses through the pipeline, but you will pay many times more for every person who is not allowed to. Poverty cannot be eliminated, but its effects on the next generation can be effectively reduced. This would be a splendid goal for the entire pipeline, pre-school to graduate school.

helpful to community colleges who will be in the middle of any such efforts? Who should be responsible for increasing the articulation between units in the system, K-graduate school?

5. Given that Arizona has the 2nd highest drop-out rate and one of the lowest rates of college going for those who do graduate, the state must plan for an increase in high school drop-outs in the work force, as well as an increase in unemployment and of those in low-skilled, low pay jobs. (Tourism, one of Arizona's largest industries, if not the largest, is overwhelmingly cashiers, waiters/waitresses, janitors, room cleaners and clerks, all minimum wage jobs for high school drop-outs. Most such jobs are performed by a combination of women, immigrants and minorities, and promotions are very unusual.) As the realities of the work force come to contradict what company leaders say they need in a high-tech era work force, what will be the result? Can the state continue to assume that workers moving into the state will possess advanced skills? And that a very high percentage of jobs will not pay enough to support a family, nor provide health care benefits? There needs to be some state initiative on the relationship of education and jobs. At the moment, the high rate of school drop-outs fits perfectly the state's increasing need for low-pay, low-skill jobs in the service economy. But who is happy about that arrangement? Who is responsible for a better state policy on equity, education and job access, and the promotion of the American dream for large numbers of immigrants, in-migrants, minorities and others in poverty? How can educators, business and government leaders and citizens work together to create a vision of Arizona's future that will provide more opportunity for more people?

QUESTIONS

SOME QUESTIONS FOR CONVERSATION, STUDY AND ACTION, FOR ALL OF ARIZONA'S EDUCATIONAL LEADERS AND CITIZENS

1. There are capable representatives who speak for K-12, community colleges and universities when major decisions (especially funding) must be made by political leaders, from governors to legislators to school boards. However, political strategy often seeks to split up such groups, playing each off against the other two. How could the educational leadership of all three levels present a united front? Are there educational priorities that all could agree on? Looking at the entire pipeline, where would the state get the greatest return on new efforts? Could a unified, single set of budget priorities be presented to the legislature and governor that would maximize gain throughout the educational pipeline?

   Who decides? Who convenes?

2. It is clear from the pipeline analysis that some of the most crucial failures occur in the lives of pre-school kids. These will lead directly to absenteeism, drop-outs, prisoners and pregnant teen age girls, a lower quality work force and reduced customer base for business and a lower level of tax income for governments. Who speaks for pre-schoolers in Arizona's political life? Who should? At the very level where the most gains can be realized for the least cost, there is no group or person charged with getting that set of issues into the political arena in Arizona (or in most other states as well). In that all three levels of the educational pipeline will benefit if these pre-school conditions are improved, what are the ways in which educational leaders can convey the importance of reducing inequality among the very youngest Arizona citizens?

3. The minute someone (like this author) states that class is a more pervasive factor than race in creating inequality, those who wish to reduce education costs above all else will immediately move to end the (excellent) programs the state has now to improve minority preparation and persistence. That is not what is intended here. The current programs, described in this paper, need to be supplemented to cover all young people in poverty regardless of ethnicity. The highest percentage of Arizona youth in poverty is in Hispanic, black and Native American populations, but in addition to these efforts, a small component should be added to ensure that poor youth of any ethnicity will be helped to have a fair start in the educational system. How can the current programs be kept (and even improved) while adding a component that potentially covers all disadvantaged kids, especially the youngest? (If the prison population can be reduced by four each year, 16 students can attend the University system tuition free. There is a payoff in all this).

4. In many ways, the community colleges are the most vital sector in the pipeline, as they allow all kinds of changes in student direction, helping people who need a little more time to attain subject matter competence to do so, allowing the very well prepared in high school to shorten their time and limit their financial debt in their college education, and generally to be a bridge between secondary school, university, and the working world. In that they are truly "in the middle," how can coordination between K-12 and universities be more helpful to community colleges who will be in the middle of any such efforts? Who should be responsible for increasing the articulation between units in the system, K-graduate school?

5. Given that Arizona has the 2nd highest drop-out rate and one of the lowest rates of college going for those who do graduate, the state must plan for an increase in high school drop-outs in the work force, as well as an increase in unemployment and of those in low-skilled, low pay jobs. (Tourism, one of Arizona's largest industries, if not the largest, is overwhelmingly cashiers, waiters/waitresses, janitors, room cleaners and clerks, all minimum wage jobs for high school drop-outs. Most such jobs are performed by a combination of women, immigrants and minorities, and promotions are very unusual.) As the realities of the work force come to contradict what company leaders say they need in a high-tech era work force, what will be the result? Can the state continue to assume that workers moving into the state will possess advanced skills? And that a very high percentage of jobs will not pay enough to support a family, nor provide health care benefits? There needs to be some state initiative on the relationship of education and jobs. At the moment, the high rate of school drop-outs fits perfectly the state's increasing need for low-pay, low-skill jobs in the service economy. But who is happy about that arrangement? Who is responsible for a better state policy on equity, education and job access, and the promotion of the American dream for large numbers of immigrants, in-migrants, minorities and others in poverty? How can educators, business and government leaders and citizens work together to create a vision of Arizona's future that will provide more opportunity for more people?

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PUBLIC OPINION

- NOTE TO THE READER: On September 25, 1996 in Phoenix, Arizona, and September 26, 1996 in Tucson, Arizona, conferences were held to release the findings of this publication, Arizona Education–Birth to Grad School by Dr. Harold L. Hodgkinson and another paper commissioned by AMEPAC called A Study of the Arizona Financing Issues Relating to Education and the Implications for Minority Student Achievement by Professor Frank J. Sackton. At each of the conferences a work group session was held for conference participants to suggest solutions to the problems identified in the papers. Following is a summary of those suggestions and comments.

Several recurring themes emerged from the workgroups devoted to solutions from the AMEPAC conference participants. Of primary concern was the necessity for solutions to the funding problems of education and ways to achieve greater equity in funding. This issue was raised in several different ways:

- have funding follow the student in the current year
- equalize funding by replacing the property tax with another funding mechanism
- examine whether charter schools are using funds adequately
- determine whether school facilities are being used for enough hours and days during the year
- need to develop better partnerships with businesses who can take the burden of keeping technology current off the school
- need to make it easier for students to articulate between high school and community college by providing funding for classes, books, and other necessities.

– Close behind the issue of funding was the problem of the curriculum; are schools preparing students, and especially minority students, for the world they will have to live in. Key points here included the tracking of minority students into vocational programs, a concern with out-of-date curriculum, and the need for curriculum revisions based on who is actually in the classroom.

– Absenteeism and the dropout rate concerned many participants in the workgroups, who felt that better tracking mechanisms for students in the public schools would help solve the problem of students who move so many times that they are lost by the system and drop out. Greater parental involvement was also seen as a need. "We need to put absenteeism in perspective. Why does a student have to be in school every day? Are parents aware of absentee patterns, and do they value attendance?" Some participants also saw a need to acknowledge a parental component in policy decisions. And some questioned the value of kicking students out of school.

Business is seen as a potential partner in education, for community service, equipment, and advice on skills needed for a future work force.

– To bring about needed reforms, a large-scale public awareness program must be instituted, which holds the

public's feet to the fire about minority recruitment and retention. Such a program would start with the broad scale dissemination of the papers from this conference to the general public in Arizona. Conference participants also suggested letters to the editor, newspaper articles, a lobbying program, and parental involvement. "Parents should be activists," said one participant. Bi-lingual and bi-cultural programs should be mandatory for teacher certification.

– Clearer articulation among K-16 was viewed as another need. "Perhaps viewing the system from the top down would help us see what it should look like," said a conferee. "After we define what we want as an outcome, we can plug in the pieces to arrive at the desired goal." College preparatory classes should be available to all high school students, and they should be encouraged to enroll. Some high schools were thought to be unprepared to meet the Regent's 1998 admission standards. It was also suggested that a core curriculum be arrived at, that every student would have to take, even if he or she were not intending to go to college. With this curriculum in place, Arizona would be assured that any graduating student would have a core set of skills necessary for employment.

– Developing self-esteem in students also emerged as an issue. Participants pointed out that teachers and administrators should encourage students, and not give up on them. Teachers need to have high expectations for students, and be able to motivate them. To do this, teachers themselves must be motivated by staff development programs, training in diversity, and school administrators. Scarce dollars should be set aside for cultural awareness programs and teacher training.

– In general, most of the conference workshops stressed the need for ongoing public information and cooperation in raising the issue of educational success in the 21st century.

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Previous positions:

Fellow, American Council on Education, 1985-87.

Fellow, Institute for Educational Leadership, 1983-85.

President, National Training Laboratories, 1979-83.

Director, American Management Associations, 1977-79.

Director, National Institute of Education, 1975-77 (Appointed by President Gerald Ford).

Project Director, University of California, Berkley, 1968-1975.

Dean of the College, Bard College, 1962-68.

Dean, School of Education, Simmons College, 1958-62.

Dr. Hodgkinson has directed major research projects for the Carnegie Commission, the U.S. Office of Education, the Exxon Foundation, the Ford Foundation, and the Atlantic Richfield Foundation.

Dr. Hodgkinson is the author of twelve books, three of which have won national awards, and over 200 articles, for which he was honored by the American Education Press Association. He has also been editor of several journals, including *Harvard Educational Review* and *Journal of Higher Education.*

Dr. Hodgkinson is widely known as a lecturer and analyst of educational issues at all levels. His consulting assignments have included 600 colleges and universities; numerous public school systems; state agencies; state legislatures; city governments and corporations such as 3-M, Federal Express, IBM, General Motors, Atlantic Richfield, Burger King, Bank of America, and Texas Instruments.

Dr. Hodgkinson holds ten honorary degrees. In 1989, he was one of three Americans awarded the title of Distinguished Lecturer by the National Science Foundation.

Dr. Hodgkinson earned his undergraduate degree from the University of Minnesota, masters degree from Wesleyan, and doctorate degree from Harvard University.

Recent reports include:

A Demographic Look at Tomorrow (1992)

The Demographics of American Indians: One Percent of the Population, Fifty Percent of the Diversity (1992)

Higher Education 1990-2010, A Demographic View (1991)

All One System: Demographics of Education, Kindergarten Through Graduate School (1989)

The Same Client: The Demographics of Service & Delivery Systems (1989)

*Twenty states have been profiled in separate reports.